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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,585	12/12/2003	James Hamden	020964-002810US	1730
20350	7590	12/28/2004	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			PAREKH, NITIN	
			ART UNIT	PAPER NUMBER
			2811	

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/735,585

Applicant(s)

HARN DEN ET AL.

Examiner

Nitin Parekh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. Claim 2 is objected to because of the following informalities:

A. The limitations as recited in claim 2, include: "the supplemental diepad portion is positioned on an end of the package between the lead and a second lead".

However, as disclosed in the specification (see Fig. 3, 6, etc.), the supplemental diepad portions (see 311, 606, etc. in Fig. 3 and 6 respectively) are positioned between the end/edge of the package and the die in one direction and between the lead and the second lead in another direction. The supplemental diepad portions in none of the Figures are positioned on the end of the package as recited in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Pritchard et al. (US Pat. 5479050).

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Regarding claims 1, 5 and 8, Pritchard et al. disclose a package for a semiconductor device comprising:

- a semiconductor die/an integrated circuit (IC) die (33 in Fig. 2 and 3) having a laterally conducting structure and a ground contact (not numerically referenced- see ground wires 24/25 connecting the contact sites on the die in Fig. 2 and 3; Col. 2, lines 13 and 44) on an upper surface, and
- a leadframe (20 in Fig. 2 and 3) comprising:
 - o a die mount pad (DMP-21 in Fig. 2 and 3) in contact with a lower surface of the die,
 - o a plurality of lead fingers/leads (see 27 in Fig. 2) being separated from the diepad, and
 - o supplemental pedestal portions/downbond diepad portions (see 23 and 25 in Fig. 2/3) projecting from a main portion of the DMP and being configured to receive downbond wires (see 24/25 in Fig. 2 and 3) from the respective ground contacts

(Fig. 2 and 3; Fig. 1-3; Col. 1 and 2).

Regarding claim 2, Pritchard et al. disclose the entire claimed structure as applied to claim 1 above, wherein Pritchard et al. disclose the supplemental DMP portions being positioned between the end/edge of the package and the die in one direction and between the lead/first lead and the second lead (see leads projecting from 21 and other

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leads 27 in Fig. 2) in another direction in a final structure after conventional final processing of the leadframe package including molding and removal of leadframe strips and dam bars (Fig. 2; Col. 2, lines 19-39). Furthermore, the lead/first lead and the second lead (see 27 adjacent to those connected to the DMP in Fig. 2) are separate from the DMP.

Regarding claims 3 and 4, Pritchard et al. disclose the entire claimed structure as applied to claim 1 above, wherein Pritchard et al. further disclose a second lead projecting from the DMP and the supplemental pedestal portion/downbond diepad portion being a portion/part of the second lead (see 27 connected to the DMP and 23/25 in Fig. 2).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pritchard et al. (US Pat. 5479050) in view of the admitted prior art (APA).

Regarding claims 6 and 7, Pritchard et al. teach the entire claimed structure as applied to claim 1 above, except the die comprises a power IC and the die being configured to operate with a current of between about 1 and 20 Amps.

The APA teaches packages using conventional IC dice comprising a power IC where the dice are configured to operate with a current of between about 1 and 20 Amps (see specification pages 1, 2 and 4-7).

It would have been obvious to a person of ordinary skill in the art at the time invention was made to incorporate the die comprises a power IC and the die being configured to operate with a current of between about 1 and 20 Amps as taught by the APA so the desired electrical performance requirements can be achieved in Pritchard et al's package.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pritchard et al. (US Pat. 5479050) in view of Tsai (US Pat. 6831352).

Regarding claim 9, Pritchard et al. teach the entire claimed structure as applied to claim 1 above, except the diepad comprising copper.

Tsai teaches leadframe packages comprising a die paddle/die pad support structure where the leadframe/die pad is made of conventional metal such as copper (70/72 in Fig. 3A-3C; Col. 4, lines 60-67).

It would have been obvious to a person of ordinary skill in the art at the time invention was made to incorporate the diepad comprising copper as taught by Tsai so the desired thermal and electrical performance can be achieved in Pritchard et al's package.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nitin Parekh whose telephone number is 571-272-1663. The examiner can normally be reached on 09:00AM-05:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

NP

12-22-04



NITIN PAREKH

PRIMARY EXAMINER

TECHNOLOGY CENTER 2800